

IN THE ABSTRACT:

Please replace the Abstract with the following:

ABSTRACT

An amplifier. ~~In the illustrative embodiment, the amplifier includes~~ including a monolithic semiconductor substrate and an array disposed on said substrate for coherently receiving and retransmitting electromagnetic energy. ~~In a specific embodiment, the~~ The array is implemented with a plurality of cells. Each of the cells includes a dual polarization antenna structure for receiving electromagnetic energy and an amplifier connected thereto. ~~A reflective mode implementation of the present teachings includes an~~ The amplifier ~~comprising~~ may include an ortho-mode feed and a reflective amplifier array adapted to be illuminated by the feed with an input wavefront with a first polarization and to return thereto an amplified wavefront with a second polarization orthogonal to the first wavefront. ~~Another novel aspect of the invention derives from the provision of f~~First and second mirrors dual shaped mirrors may be incorporated for illuminating the array with a planar wavefront and converting the reflected planar wavefront to a spherical wavefront. ~~A transmissive mode implementation of the invention includes an array of unit cells with each unit cell having a receiving antenna and a power amplifier. At least some of the cells have a transmit antenna adapted to send a wavefront in the direction of a received wavefront or in a controlled direction.~~